

Result of a performance test to store FACT raw data in FITS files.

One event consists of 125 samples X 1440 pixels = 180000 values.

Assuming a trigger rate of 30 HZ and one file every 2 minutes, about 3600 samples have to be stored in one file.

The raw data are random values in the range from 0 to 16383 with a Gaussian distribution (the mean is 1024, sigma is set to 120).

The FITS and ROOT files are created with following FITS template:

```
XTENSION  BINTABLE           / Binary table extension
EXTNAME    FACT-RAW          / Extension name
EXTREL     '1.0'             / ISDC release number
BASETYPE   DAL_TABLE         / Data Access Layer base type
          TTYPE#    EVENT_NUMBER / Event number
          TFORM#    1J         / Format of column EVENT_NUMBER
          TTYPE#    RAW_VAL     / FACT raw data of one event
          TFORM#    180000U     / Format of column RAW_VAL
```

The test are performed on a laptop, using the local disk. There were no other user processes running at the same time.

Times in seconds (duration / CPU time) to create one file with 3600 samples (about 2 minutes of data):

	FITS file, using DAL	FITS file, using AstroROOT2	ROOT TTree, using AstroROOT2	Binary file
Write uncompressed file	35 / 12	31 / 10		30 / 4
Compress the file (gzip)	182 / 185	182 / 185		172 / 159
Create compressed file	217 / 197	213 / 195	98 / 88	202 / 163

Times in seconds (duration / CPU time) to read one file with 3600 samples (about 2 minutes of data):
(The files were always read after the laptop was switched on, i.e, they really have to be read from disk)

	FITS file, using DAL	FITS file, using AstroROOT2	ROOT TTree, using AstroROOT2	Binary file
Read uncompressed file	29 / 8	36 / 27		31 / 2
Read compressed file	30 / 29	39 / 37	38 / 19	

File size

	FITS file, using DAL	FITS file, using AstroROOT2	ROOT TTree, using AstroROOT2	Binary file
Uncompressed file	1296 MB	1296 MB		1296 MB
Compressed file	928 MB	928 MB	933 MB	928 MB
Compression factor	28.4 %	28.4 %		28.4 %